

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 11. to 16. below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:
Title Page of WIPO Document WO 01/32781
Form PCT/IB/301 -- Notification of Receipt of Record Copy
Form PCT/IB/304 -- Notification Concerning Submission or Transmittal of Priority Document
Form PCT/ISA/210 -- English Language International Search Report (2 pages)
Postcard

FORM PTO-1390
U.S. APPLICATION NO.
(if known, see 37 CFR 1.5):
Unknown

INTERNATIONAL APPLICATION NO..

PCT/JP00/07751

09/869747
JC18 Rec'd PCT/PTO 29 JUN 2001
ATTORNEY'S DOCKET NUMBER

Furuya Case 1391

17. [X] The following fees are submitted:

CALCULATIONS PTO USE ONLY

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):

Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
and International Search Report not prepared by the EPO or JPO \$1000.00
International preliminary examination fee (37 CFR 1.482) not
paid to USPTO but International Search Report prepared by
the EPO or JPO \$ 860.00
International preliminary examination fee (37 CFR 1.482) not
paid to USPTO but international search fee (37 CFR 1.445(a)(2))
paid to USPTO \$ 710.00
International preliminary examination fee paid to USPTO (37
CFR 1.482) but all claims did not satisfy provisions of PCT
Article 33(1)-(4) \$ 670.00
International preliminary examination fee paid to USPTO (37 CFR
1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ... \$ 100.00

ENTER APPROPRIATE BASIC FEE AMOUNT = \$860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)). \$

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	7 - 20 =	0	X \$ 18.00	\$
Ind. claims	1 - 3 =	0	X \$ 80.00	\$
MULTIPLE DEPENDENT CLAIMS (if applicable)			+ \$270.00	\$
TOTAL OF ABOVE CALCULATIONS				= \$860.00

Reduction of 1/2 for filing by small entity, if applicable. Small Entity Statement
must also be filed (Note 37 CFR 1.9, 1.27, 1.28). - \$
SUBTOTAL = \$860.00

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months from the earliest claimed priority date (37 CFR 1.492(f)). + \$
TOTAL NATIONAL FEE = \$860.00

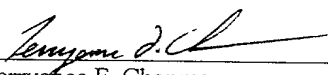
Fee for recording assignment (37 CFR 1.21(h)). The assignment must be accompanied
by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + \$ 40.00
TOTAL FEES ENCLOSED = \$900.00
Amount to be refunded \$
charged \$

- a. [X] A check in the amount of \$900.00 to cover the above fees is enclosed.
b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate
copy of this sheet is enclosed.
c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to
Deposit Account No. 06-1382. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a)
or (b)) must be filed and granted to restore the application to pending status.**

IN DUPLICATE

SEND ALL CORRESPONDENCE TO:
FLYNN, THIEL, BOUTELL & TANIS, P.C.
2026 Rambling Road
Kalamazoo, Michigan 49008-1699


Terry F. Chapman
Registration Number: 32 549

300.0900

09/869747

PATENT APPLICATION

JC18 Rec'd PCT/PTO 29 JUN 2001

Express Mail Label No.: EL 640 011 590 US

IN THE U.S. PATENT AND TRADEMARK OFFICE

June 29, 2001

Applicant: Toshihiro TAI

For : THERMOPLASTIC RESIN COMPOSITION

PCT International Application No.: PCT/JP00/07751

PCT International Filing Date: November 2, 2000

U.S. Application No.

(if known, see 37 CFR 1.5): Unknown

Atty. Docket No.: Furuya Case 1391

Box PCT

Assistant Commissioner for Patents

Washington, DC 20231

PRELIMINARY AMENDMENT CANCELING CLAIMS

Sir:

Prior to calculation of the filing fee in the above-identified application, kindly enter the following:

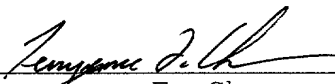
IN THE CLAIMS

Please amend Claims 3, 4 and 6 as shown on the enclosed marked-up page. Pursuant to 37 CFR § 1.121, a replacement page with the amended claims presented in clean form is also enclosed.

REMARKS

This amendment cancels claims to reduce the filing fee. Please enter this amendment before calculating the filing fee.

Respectfully submitted,


 Terryence F. Chapman

TFC/smd

FLYNN, THIEL, BOUTELL
 & TANIS, P.C.
 2026 Rambling Road
 Kalamazoo, MI 49008-1699
 Phone: (616) 381-1156
 Fax: (616) 381-5465

Dale H. Thiel
 David G. Boutell
 Ronald J. Tanis
 Terryence F. Chapman
 Mark L. Maki
 David S. Goldenberg
 Sidney B. Williams, Jr.
 Liane L. Churney
 Brian R. Tumm
 Tricia R. Cobb

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 Reg. No. 36 589
 Reg. No. 31 257
 Reg. No. 24 949
 Reg. No. 40 694
 Reg. No. 36 328
 Reg. No. 44 621

Encl: Marked-Up and Clean Amended Claims 3, 4 and 6

09869747-06290-24469860

June 29, 2001

3. (Amended) The thermoplastic resin composition according to claim 1-~~or~~ 2, wherein the fibrous filler is carbon fiber.

4. (Amended) The thermoplastic resin composition according to ~~any of~~ claims 1-~~to~~ 3, which further comprises a flame retardant.

6. (Amended) A molded product comprising the thermoplastic resin composition as claimed in ~~any of~~ claims 1-5.

09869747.062901

June 29, 2001

3. (Amended) The thermoplastic resin composition according to claim 1, wherein the fibrous filler is carbon fiber.

4. (Amended) The thermoplastic resin composition according to claim 1, which further comprises a flame retardant.

6. (Amended) A molded product comprising the thermoplastic resin composition as claimed in claim 1.

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RECEIVED 29 JUN 2001

Description

Thermoplastic resin composition

Field of the Invention

The present invention relates to a thermoplastic resin composition which has an excellent fluidity and is able to give a molded product having a high elasticity.

Prior Art

In order to increase the modulus of elasticity of a molded product obtained from a thermoplastic resin, there has been already adopted a method where adding a filler such as carbon fiber, glass fiber, talc and mica. Among these fillers, carbon fiber has been used as the most effective means since the modulus of elasticity inherent thereto is very high and an effect of improving the modulus of elasticity resulted by its addition is high.

However, carbon fiber has a low specific gravity and, when its adding amount increases, its volume fraction in the resin significantly increases as compared with other fillers. Accordingly, as a result, fluidity of the resin lowers and the molding processability lowers. Especially in the case of molded substances (products) obtained from a material where high rigidity is required, many of them are thin and, if the fluidity is low, there is a problem in processing. In addition,

when reinforcement is carried out by a fibrous filler such as carbon fiber, there is another problem that a warp caused by anisotropy in the shrinking rates arises is resulted.

Disclosure of the invention

An object of the present invention is to provide a thermoplastic resin composition which has no above-mentioned problems, shows a good molding ability due to its excellent fluidity and is able to give a molded product having a high elasticity.

The present invention provides a thermoplastic resin composition comprising 90-30% by weight of (A) a thermoplastic resin, 5-60% by weight of (B) a fibrous filler and 5-60% by weight of (C) a whisker.

Examples of the thermoplastic resin which is the component (A) used in the present invention is one or more selected from a group consisting of polyamide, styrene polymer, polyester, polyurethane, polyether, polyester ether, polyamide ether, polyphenylene oxide and polycarbonate. Among them, one or more selected from styrene polymer, polyamide, polyester and polycarbonate are preferable, and polyamide and styrene polymer are more preferable.

As the polyamide, one or more selected from polyamide resin formed from diamine and dicarboxylic acid and copolymer thereof such as Nylon 66, polyhexamethylene sebacamide (Nylon 610), polyhexamethylene dodecamide (Nylon 612),

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polydodecamethylene dodecanamide (Nylon 1212), poly-m-xylylene adipamide (Nylon MXD6), polytetramethylene adipamide (Nylon 46) and a mixture thereof and a copolymer thereof; a copolymer such as Nylon 6/66, Nylon 66/6T where a 6T component is not more than 50 molar % (6T: polyhexamethylene terephthalamide), Nylon 66/6I where a 6I component is not more than 50 molar % (6I: polyhexamethylene isophthalamide), Nylon 6T/6I/66 and Nylon 6T/6I/610; aromatic polyamide resin such as polyhexamethylene terephthalamide (Nylon 6T), polyhexamethylene isophthalamide (Nylon 6I), poly(2-methylpentamethylene) terephthalamide (Nylon M5T) and poly(2-methylpentamethylene) isophthalamide (Nylon M5I); and copolymer such as Nylon 6T/6I and Nylon 6T/M5T may be proposed.

Further, as the polyamide, one or more selected from an open-ring polymer of cyclic lactam, a polycondensate of aminocarboxylic acid and a copolymer thereof such as aliphatic polyamide resin and copolymer thereof such as Nylon 6, poly- ω -undecanamide (Nylon 11) and poly- ω -dodecanamide (Nylon 12); and a copolymer with polyamide comprising dicarboxylic acid and diamine such as Nylon 6T/6, Nylon 6T/11, Nylon 6T/12, Nylon 6T/6I/12 and Nylon 6T/6I/610/12 may be proposed.

As the styrene polymer, polymer of styrene and styrene derivative such as α -substituted styrene and nuclear-substituted styrene and copolymer prepared from the above monomer with another monomer such as vinyl compound (including acrylonitrile, acrylic acid and methacrylic acid) and/or

conjugated diene compound (such as butadiene and isoprene) may be proposed. As such styrene polymer, polystyrene, high-impact polystyrene (HIPS), acrylonitrile-butadiene-styrene copolymer (ABS resin), acrylonitrile-styrene copolymer (AS resin), styrene-methacrylate copolymer (MS resin), styrene-butadiene copolymer (SBS resin) etc. are preferable.

Further, in order to improve the compatibility of polyamide with styrene polymer, a styrene copolymer where a carboxyl-containing unsaturated compound is copolymerized may be compounded as a part of the styrene copolymer.

The styrene copolymer in which the carboxyl-containing unsaturated compound is copolymerized is a copolymer where the carboxyl-containing unsaturated compound and, if necessary, other monomer which is copolymerizable therewith is/are polymerized in the presence of a rubber polymer, and the following may be proposed.

(1) a graft polymer which is prepared by polymerizing of a monomer where an aromatic vinyl is an essential component or a monomer where an aromatic vinyl and a carboxyl-containing unsaturated compound as essential components in the presence of a rubber polymer copolymerized with a carboxyl-containing unsaturated copolymer;

(2) a graft copolymer which is prepared by copolymerizing a monomer where an aromatic vinyl and a carboxyl-containing unsaturated compound are essential components in the presence of a rubber polymer;

(3) a mixture of a rubber-enriched styrene resin where a carboxyl-containing unsaturated compound is not copolymerized and a monomer where an aromatic vinyl and a carboxyl-containing unsaturated compound are essential components;

(4) a mixture of the above (1) and (2) and a copolymer where an aromatic vinyl and a carboxyl-containing unsaturated compound are essential components; and

(5) a mixture of the above (1) - (4) and a copolymer where an aromatic vinyl is an essential component.

In the above-mentioned (1) - (5), styrene is preferable as an aromatic vinyl, while acrylonitrile is preferable as a monomer which is copolymerized with the aromatic vinyl. The amount of the styrene polymer where the carboxyl-containing unsaturated compound is copolymerized in the component (A) is preferably 0.1-8% by weight, and more preferably 0.2-7% by weight.

The amount of the component (A) in the composition is 90-30% by weight, preferably 90-40% by weight, and more preferably, 90-50% by weight.

As the fibrous filler which is the component (B) used in the present invention, carbon fiber, glass fiber and other inorganic fibers (such as silicon carbide fiber and alumina fiber) may be proposed. Among them, carbon fiber is preferable when the manufacturing cost and the reinforcing effect are taken into consideration. As the carbon fiber, carbon fibers of a

cellulose, a PAN, a pitch etc. may be proposed.

The amount of the component (B) in the composition is 5-60% by weight, preferably 5-50% by weight and more preferably 5-40% by weight, so that fluidity of the composition, mechanical strength of the molded product, etc. are synergistically heightened by a combination with the component (C).

The whisker which is the component (C) used in the present invention is a component which achieves a synergistic effect by a combination with the component (B), particularly with carbon fiber and may be any of metal and non-metal. For example, the one comprises aluminum borate, silicon carbide, silicon nitride, potassium titanate, basic magnesium sulfate, zinc oxide, graphite, magnesia, calcium sulfate, sodium calcium phosphate, magnesium borate, titanium diborate, α -alumina, chrysotile, wollastonite etc. may be proposed.

Since the whisker is to suppress the increase of the total volume of the composition and to improve the fluidity, the more its specific gravity, the better. The gravity of the whisker is preferably 2 or more, 2.5 or more is more preferable and 2.9 or more is further preferable.

The amount of the component (C) in the composition is 5-60% by weight, preferably 5-50% by weight and more preferably 5-30% by weight, so that fluidity of the composition, mechanical strength of the molded product, etc. are synergistically heightened by a combination with the component (B).

Besides the above components (A) - (C), a flame retardant

may also be compounded in the present invention, and as the flame retardant, one or more selected from a red phosphorous flame retardant and a hydrated metal flame retardant are preferable.

Examples of the red phosphorous flame retardant are red phosphorus and a compound containing phosphorus. With regard red phosphorus, that where yellow phosphorus is converted and then disintegrated, that where the state of white phosphorus before conversion is finely classified and then converted, etc. may be used. That where the surface is untreated and that containing black phosphorus as a result of aged-based change may be also used. With regard to a compound containing phosphorus, that which contains 10% by weight or more phosphorus is preferable. When safety etc. are taken into consideration, it is preferable that such red phosphorus and phosphorus-containing compound is made into a master batch using a base resin.

As the hydrated metal flame retardant, one or more selected from alkaline metal hydrated metal, hydrate of an alkaline earth metal such as aluminum hydroxide and magnesium hydroxide, and the like may be proposed. Among them, magnesium hydroxide is preferable.

The amount of the flame retardant in the composition to is preferably 5-50 parts by weight, more preferably, 5-20 parts by weight, to 100 parts by weight of the total amount of the components (A) - (C).

If necessary, the composition of the present invention

may be further compounded with a flame retardant other than the above-mentioned ones (inorganic flame retardants such as the bromine, chlorine and antimony trioxide flame retardants), a stabilizer against heat, light and oxygen (antioxidant such as a phenol compound and a phosphorus compound; ultraviolet absorber such as a benzotriazole compound, a benzophenone compound and a phenyl salicylate compound; and a stabilizer against heat such as a stabilizer of a hindered amine, a tin compound and an epoxy compound), a plasticizer, a slidability improving agent such as dimethyl polysiloxane, a lubricant or a mold lubricant, an antistatic agent, a coloring agent, etc.

The molded product of the present invention can be prepared by molding the above-mentioned thermoplastic resin composition by means of various molding methods such as an extrusion molding and an injection molding. Further, the molded product of the present invention may, if necessary, be subjected to known metal plating methods such as an electric plating, a nonelectrolytic plating, a melt plating, an impact plating, a vacuum plating and a chemical plating, so that the surface of the molded product is plated with metal. The molded product according to the present invention is useful as housings and parts of electric appliances for home use and office automation instruments, and the metal-plated molded products are particularly excellent in flame resistance.

Examples

The present invention will now be further illustrated by way of the following Examples. In the following Examples and Comparative Examples, the components which will be given below were used.

Component (A)

Polycarbonate: Number average molecular weight 18000

Nylon 6: Number-average molecular weight 12000

ABS resin: 45% of styrene, 15% of acrylonitrile and 40% of rubber

Maleic acid-modified ABS resin: 42% of styrene, 15% of acrylonitrile, 40% of rubber and 3% of maleic acid

Component (B)

Carbon fiber: Besfight HTA-C6-NR (diameter: 7 μ m; fiber length: 6mm)

Component (C)

Aluminum borate whisker: Alborex Y

Flame retardant

Red phosphorous flame retardant: Novaexcel 140 (manufactured by RINKAGAKUKOGYO Co., LTD)

Magnesium hydroxide: Kisuma 5A (manufactured by KYOWA Chemical Industry Co., LTD)

Examples 1-3 and Comparative Examples 1-6

The components as shown in Table 1 (components (A) - (C) are given in % by weight, while flame retardant is given in terms of parts by weight to the components (A) - (C)) were blended and then melted and kneaded using a biaxial extruder, to give a resin

composition in a form of pellets. Temperature for the extrusion molding was 250°C, the carbon fiber was poured from a side feeder and length of the carbon fiber was adjusted by an operation of a screw of the extruder. Those compositions were used for the measurements as shown in Table 1 by the following methods.

(Modulus of flexural elasticity; Izod Impact Value; and Warp)

A test piece having a thickness of 1/4 inch for a flexural test, a test piece having a thickness of 1/4 inch with a notch for an Izod test and a plate of 120 mm × 120 mm × 2 mm for evaluation of warp (dimension stability) were prepared from the resin composition pellets using an injection molding machine (cylinder temperature: 250°C; metal mold temperature: 60°C; type 265/100M SII manufactured by Mitsubishi Heavy Industries). The flexural test and the Izod impact test were carried out according to ASTM D790 and ASTM D256, respectively. While the warp amount was measured at 23°C and 50% relatively humidity using a height gauge.

Fluidity

Fluidity was evaluated by means of a melt index and was carried out according to ASTM D1238. The measurement was carried out at 280°C and the total weight of the weigh and the piston was made 10 kg.

Flame resistance

A test piece of 13×130×0.8 mm was used to evaluate its flame resistance according to a vertical flame resistance test (94V-0) defined in UL94 of the American UL standard.

As will be apparent from the comparison of Example 1 with Comparative Example 1 and 2, that of Example 2 with Comparative Examples 3 and 4 and that of Example 3 with Comparative Examples 5 and 6, the compositions of Examples 1-3 showed well-balanced results in all measuring items due to the presence of both components (B) and (C) therein as compared with Comparative Examples 1-6 containing only one of them. Fluidity showed particularly significant improvement due to a combination of the components (B) and (C) and, when the facts that application to thin substances becomes easier as a result of improvement in the molding property and that mechanical strength of the thin substance is high are taken into consideration, the industrial effect is remarkable.

In the thermoplastic resin composition of the present invention, fluidity of the composition is improved by a synergistic effect of the component (B), particularly carbon fiber, with the component (C) whereby the molding property is good, mechanical strength such as modulus of flexural elasticity and high impact strength is improved and no warp is resulted in the molded product.

Table 1

	Example			Comparative Example					
	1	2	3	1	2	3	4	5	6
(A) Polycarbonate	50			50	40				
Nylon 6		35	28			35	35	28	28
ABS resin		8	6			8	8	6	6
Maleic acid-modified ABS resin		7	6			7	7	6	6
(B) Carbon fiber	30	30	30	50		50		50	
(C) Aluminum borate whisker	20	20	20		60		60		60
Red phosphorous flame retardant			5					5	5
Magnesium hydroxide			5					5	5
Modulus of flexural elasticity (MPa)	18000	25000	24500	24000	25000	25000	25000	25500	24500
Izod Impact Strength (J/m)	50	98	88	45	30	80	28	60	25
Warp (mm)	0.6	0.6	0.5	2.2	0.3	2.5	0.3	2.3	0.3
Fluidity (MI) (g/10min)	22	40	35	5	15	18	20	22	25
Flammability 0.8mm	Spec Out	Spec Out	V-0	Spec Out	Spec Out	Spec Out	Spec Out	V-0	V-0

Claims

1. A thermoplastic resin composition comprising (A) 90-30% by weight of (A) a thermoplastic resin, 5-60% by weight of (B) a fibrous filler and 5-60% by weight of (C) a whisker.

2. The thermoplastic resin composition according to claim 1, wherein the component (A) is at least one selected from polyamide and a styrene polymer.

3. The thermoplastic resin composition according to claim 1 or 2, wherein the fibrous filler is carbon fiber.

4. The thermoplastic resin composition according to any of claims 1 to 3, which further comprises a flame retardant.

5. The resin composition according to claim 4, wherein the flame retardant is at least one selected from a red phosphorus flame retardant and a hydrated metal flame retardant.

6. A molded product comprising the thermoplastic resin composition as claimed in any of claims 1-5.

7. The molded product according to claim 6, which has been plated with metal.

Abstract

To provide a thermoplastic resin composition which has an excellent fluidity and is able to give a molded product having an excellent mechanical strength. A thermoplastic resin composition comprising 90-30% by weight of (A) a thermoplastic resin, 5-60% by weight of (B) a fibrous filler and 5-60% by weight of (C) a whisker.

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Japanese Language Declaration (日本語宣言書)

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Prior Foreign Application(s)

外国での先行出願
11-312415

(Number)
(番号)

Japan

(Country)
(国名)

2nd Nov., 1999

(Day/Month/Year Filed)
(出願年月日)

Priority Not Claimed

優先権主張なし

☐

(Number)
(番号)

(Country)
(国名)

(Day/Month/Year Filed)
(出願年月日)

☐

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(Application No.)
(出願番号)

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(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Status: Patented, Pending, Abandoned)
(現況: 特許許可済、係属中、放棄済)

(Application No.)
(出願番号)

(Filing Date)
(出願日)

(Status: Patented, Pending, Abandoned)
(現況: 特許許可済、係属中、放棄済)

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Declaration and Power of Attorney For Patent Application

特許出願宣言書及び委任状

Japanese Language Declaration

日本語宣言書

下記の氏名の発明者として、私は以下の通り宣言します。

As a below named inventor, I hereby declare that:

私の住所、私書箱、国籍は下記の私の氏名の後に記載された通りです。

My residence, post office address and citizenship are as stated next to my name.

下記の名称の発明に関して請求範囲に記載され、特許出願している発明内容について、私が最初かつ唯一の発明者（下記の氏名が一つの場合）もしくは最初かつ共同発明者である（下記の名称が複数の場合）信じています。

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Thermoplastic resin composition

上記発明の明細書（下記の欄でx印がついていない場合は、本書に添付）は、

the specification of which is attached hereto unless the following box is checked:

__月__日に提出され、米国出願番号または特許協定条約国際出願番号を__とし、
(該当する場合) __に訂正されました。☒ was filed on Nov. 2, 2000
as United States Application Number or
PCT International Application Number
PCT/JP00/07751 and was amended on
____ (if applicable).

私は、特許請求範囲を含む上記訂正後の明細書を検討し、内容を理解していることをここに表明します。

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

私は、連邦規則法典第37編第1条56項に定義されたとおり、特許資格の有無について重要な情報を開示する義務があることを認めます。

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

Japanese Language Declaration (日本語宣言書)

委任状: 私は下記の発明者として、本出願に関する一切の手続きを米特許商標局に対して遂行する弁理士または代理人として、下記の者を指名いたします。(弁理士、または代理人の氏名及び登録番号を明記のこと)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number)

Dale H. Thiel, Reg. No. 24 323
David G. Boutell, Reg. No. 25 072
Ronald J. Tanis, Reg. No. 22 724
Terryence F. Chapman, Reg. No. 32 549
Mark L. Maki, Reg. NO. 36 589

David S. Goldenberg, Reg. No. 31 257
Sidney B. Williams, Jr., Reg. No. 24 949
Timothy B. Clise, Reg. No. 40 957
Liane L. Churney, Reg. No. 40 694
Brian R. Tumm, Reg. No. 36 328

書類送付先

Send Correspondence to:

FLYNN, THIEL, BOUTELL & TANIS, P.C.
2026 Rambling Road
Kalamazoo, Michigan 49008-1699

直接電話連絡先: (名前及び電話番号)

Direct Telephone Calls to: (name and telephone number)

唯一または第一発明者名		Full name of sole or first inventor	
1-00		Toshihiro TAI	
発明者の署名	日付	Inventor's signature	Date
		J. Tai	June 14, 2001
住所		Residence	
		Osaka, Japan SPX	
国籍		Citizenship	
		Japanese	
私書箱		Post Office Address	
		Daicel Asakayamaryo 205, 3-3-23,	
		Asakayamacho, Sakai-shi, Osaka, Japan	
第二共同発明者		Full name of second joint inventor, if any	
第二共同発明者		Second inventor's signature	Date
住所		Residence	
国籍		Citizenship	
私書箱		Post Office Address	

(第三以降の共同発明者についても同様に記載し、署名をすること)

(Supply similar information and signature for third and subsequent joint inventors.)